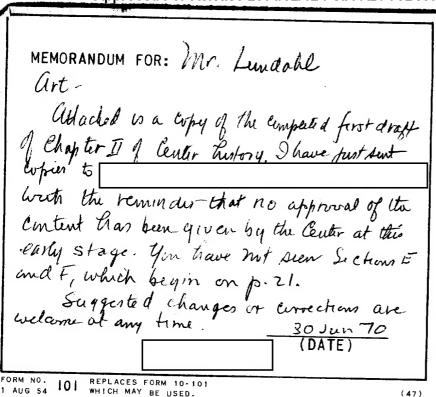
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MEMORANDUM FOR: DIR/NPIC

Thenhe for letting me see this
in doing a great job. REPLACES FORM 10-101 WHICH MAY BE USED. 101 (47)

**Declass Review** by NIMA/DOD

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	SPECRET Approved For Release 2004/02/12 : CIA-RDP78B05703A000400070001-4
	II. Establishment of Formal Photo Interpretation Activity
	A. The Die is Cast.
25X1	Action following proposal of 11 April 1952 was
	relatively fast. In a memo to Robert Amory, Jr., dated 7 May 1952,
25X1	the Chief, Geographic Division, in effect, endorsed
25X1 <sup>-</sup>	the proposal, and suggested that the Agency PI facility be
	established as the Photo Intelligence Branch within the Geogra-
	phic Division. 6/ By 26 June 1952, Amory was able to say that
	the DCI had already approved in principle the proposal for creation
	of a Photo Intelligence Division, with provision for staffing it
	over and above the proposed ORR Table of Organization submitted
25X1	for fiscal 1953. 7/ proposed branch was, thus, well on
(8)	the way to founding as a division. Doubtlessly, this change was
	related to the impending reorganization in ORR, which included
	creation of the Geographic Research Area out of the former Geo-
	graphic Division and elevation of the former branches to the status
	of divisions.
	The formal proposal for establishing the division was made
	in a staff study signed by Amory and forwarded to the Project Re-
·	view Committee on 17 July 1952. $8/$ This study was prepared in the

and his staff, with

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Geographic Division, CRR, by

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al of an allotment of from vouchered funds and an increase of 12 persons in the Table of Organization and personnel ceiling for ORR for fiscal 1953 to provide for establishing a Photo Intelligence Division in the Geographic Research Area, ORR.\*

Most of the funds requested, a total of was earmarked for personal services. Only was allocated for the purchase of equipment. The remaining was intended to reimburse the military for an estimated four projects to be done in accordance with Agency specifications.

In justifying placement of the new centralized PI faculty in the Geographic Research Area (GRA), the study cited the broad support provided by divisions in the GRA, the need of the PI's for cartographic and graphic support, and the close ties of the GRA with other parts of ORR and the DDP. The plan also called for provision of 610 feet of floor space at the beginning in Building 11, where the Geography and Cartography divisions were housed.

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<sup>\*</sup> A "Photo Intelligence Adviser" was already on board and attached to the Office of the Deputy Assistant for Geography. He and his position were to be transferred to the new division.

On 25 July 1952, the Project Review Committee approved the recommended allocation of funds and increase in the ORR T/O. 10/ Ten days later, on 4 August, a project brief based on the 17 July staff study was signed by the DCI, General Walter Bedell Smith, with the concurrence of Allen W. Dulles as Chairman, Project Review Committee. This brief also stated that beginning in fiscal 1954, the first full year of operation, the annual cost of the new activity would be approximately

With the formal approval of the proposal one step remained, to carry out the plan. Once again Amory was to demonstrate both his strong interest in establishing the photo intelligence function and the speed with which he could act. On 4 August, the same day the project was approved by the DCI, Amory sent a memo to the Deputy Director (Administration), Walter R. Wolf, submitting the proposed Table of Organization for the Photo Intelligence Division, requesting that it be considered along with the overall ORR T/O, then under study, and that the office T/O be increased by positions. 11/ The optimistic and open-handed stance of the Agency toward this new and intriguing activity was further emphasized by the fact that there was, at the time, but one PI on board, and it was to be another several months before the second one entered on duty.

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B. Organization and Concept of Operation.

in his 11 April 1952 memo to the AD/RR, Robert Amory, Jr., was further developed and spelled out as a firm proposal in the 17 July 1952 staff study submitted by Amory to the Project Review Committee. The Office of the Division Chief was to consist of three persons, and there were to be two five-man branches, one the Industrial and the other the Geographic (Table 1). The latter was intended particularly to support work in the Geography Division and serve the needs of the DDP, the former the Economic Research Area, ORR.

The method of operation and resulting products were also specified in some detail. 12/ The new division was to be staffed with PI specialists in each of several topical fields of particular concern to CIA, and these specialists were to maintain continuing liaison with their counterparts in the military. It was initially envisaged that these Agency PI's would utilize all-source materials and work shoulder-to-shoulder with economic and other analysts in bringing their knowledge of available photography and how to analyze it to bear on the solution of specific intelligence problems. The fact that only one photo intelligence officer was on duty for the first several months and that the PI's were separated physically

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IND	USTRIAL	ERANCH			Marie and an analysis in the second	G.	OGRAPH	IC BRANCH	
1 GS-14 1 GS-13 1 GS-12 1 GS-11 1 GS-9	TI	Analyst	(c) (a) (b) (d) (e)		1 1 1			Analyst " " "	(b) (c) (c) (d) (e)

- (a) On Duty
- (b) HOD 1 Nov 52
- (c) " 1 Jan 53
- (d) " 1 Mar 53
- (e) " 1 May 53

Table 1. Photo Intelligence Division, ORR: Proposed Table of Organization by Branch, Fiscal 1953. Note planned phasing in the staffing. (This table was included as part of Annex "C" to the 17 July 1952 staff study.)

from other analysts seriously hampered full implementation of this working arrangement. Indeed, the initial concept of shoulder-to-shoulder work was never fully realized.

The resulting products were expected to be working papers consisting of sketches, tabulations, and typescript to be used by other analysts in planning and executing operations or in the production of finished intelligence. There were no initial plans to produce formal photo intelligence reports, as such, for wide dissemination within CTA and throughout the intelligence community. This carefully circumscribed view of PI products and their use was faithfully reflected in practice for more than the first year of operation.

Consistent with its concept of a high-level photo intelligence operation, the staff study included one exceedingly ambitious proposal which matured very slowly. It announced that the Photo Intelligence Division would develop a mechanism, probably an interagency committee, to formulate intelligence requirements for aerial reconnaissance missions and to foster maximum use of photo interpretation facilities to meet national intelligence requirements. Obviously, this was the expression of a desire to bring photo reconnaissance and photo interpretation efforts to bear on the solution of national intelligence problems rather than merely to locate, identify, and describe potential

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bombing targets: The foresight thus displayed as well as the difficulty of attaining the desired goal was demonstrated by the fact that such a comprehensive approach to the joint management of national collection and exploitation assets was realized only with the establishment of the Committee on Imagery Requirements and Exploitation (COMIREX), a USIB subcommittee, 15 years later.

In still another way the initial concept and plan for a photo intelligence division in CIA set it apart from and above similar organizations in existence at that time. Consistently, the proposed division was called the Photo Intelligence Division, and the products were named photo intelligence. Moreover, the PI's were designated Intelligence Officer (Photo Analysis), not interpreters. On the one hand, this emphasized that they would work with all-source materials, and on the other that they would do analysis, not merely interpretation. Thus, Agency PI's would not merely identify facilities and their component parts, but, working with functional analysts, they would explain what went on in the facilities, how the component parts functioned with respect to each other, pinpoint the bottlenecks or critical control points, and the like. These distinctions in the naming and job titles were intended to convey what Agency planners believed to be

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the critical difference between photo intelligence, which was to be pursued in CIA, and photo interpretation, which was to be done elsewhere. This was a titular distinction that was to endure for nearly 10 years, until the establishment of a separate national center and other considerations were to result in a tactical retreat, at least as far as terminology was concerned, in naming the National Photographic Interpretation Center.

#### C. Jobs and People.

The first attempt at staffing the new function was deceptively easy. Whom had recommended in his

11 April 1952 memo, reported for duty on 1 July, less than three months later. The ease with which this initial step was accomplished was no measure, however, of the difficulties to follow.

The second PI recruited from outside the Agency didn't enter on duty until January 1953, and the division chief, whose selection was firm as early as July 1952, did not arrive until May 1953.

To get just one PI adviser from a Colorado museum apparently excited no one. To commence the building of a new division was clearly another matter, one not to be accomplished without all interested elements, inside and outside the Agency, getting a piece of the action.

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Furcautracy wasn't the only impediment. Scarcity of qualified PT's and an initial miscalculation in the grade scale seriously hampered recruitment, particularly to fill those positions below GS-12. The Agency was seeking not merely skilled interpreters, but those expert in at least one of several technical specialties, such as guided missiles, radar, aircraft, naval shipbuilding, and the like, or in earth sciences, such as geology or geography. Moreover, it was intended that the Agency PI would be no mere technician; in addition to his substantive specialty, each was expected to have some knowledge of related intelligence problems and how his specialized knowledge could contribute to their solution.

This was a large order. Most Pl's skilled in the desired topical specialties were either in military service as a consequence of the Korean affair, or working as civilians for the military. By March 1953, with only four Pl's cleared and on board, steps were taken to raise the lower end of the grade scale. On the third of that month Chief, Administrative Staff, ORR, sent a memo to Chief, Classification and Wage Administration Division, requesting a general raising of working level grades in the Photo Intelligence Division to a minimum of GS-12 (Table 2).

In his covering memo, justified the proposed change on the contention that the Agency needed "experts" who could instruct

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Proposed T/O

Office of the Chief (3)

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Current 1/0

Office of the Chief (3)

GS-132-15 10 (Chief) GS-132-14 10 (Deputy Chief), GS-301-5 Clerk (Steno.)	GS-132-15 IO (Chief) GS-132-14 IO (Deputy Chief) GS-301-5 Clerk (Steno.)
Industrial Branch (5)	Industrial Branch (5)
GS-132-14 IO (Photo Analysis) GS-132-13 IO (Photo Analysis) GS-132-12 IO (Photo Analysis) GS-132-11 IO (Photo Analysis) GS-132-9 IO (Photo Analysis)	GS-132-14 10 (Photo Analysis) GS-132-13 I0 (Photo Analysis) GS-132-13 I0 (Photo Analysis) GS-132-12 I0 (Photo Analysis) GS-132-12 I0 (Photo Analysis)
Geographic Branch (5)	Geographic Branch (5)
GS-132-14 IO (Photo Analysis) GS-132-13 IO (Photo Analysis) GS-132-12 IO (Photo Analysis) GS-132-11 IO (Photo Analysis) GS-132-9 IO (Photo Analysis)	GS-132-14 IO (Photo Analysis) GS-132-13 IO (Photo Analysis) GS-132-13 IO (Photo Analysis) GS-132-12 IO (Photo Analysis) GS-132-12 IO (Photo Analysis)
Table 2. Proposed changes in Grades for Photo (This table was included as an enclosed)	o Intelligence Division, 3 March 1953.

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ORR analysts in the use of photography as well as conduct extensive liaison with other government agencies. 13/ Besides, he added, the higher grades were needed to make ORR competitive with other government agencies in a scarce labor market. That the latter was the more important reason is suggested not only by the slow pace of recruitment, but also by a statement in the March 1953 monthly report for the Geographic Research Area, which complained that delay in the entrance on duty of the division chief was seriously affecting progress in the classification of positions intended to permit the hiring of "capable persons demanding more salary than is permissible under the present T/O." 14/ The decision on this important point was clearly going to await arrival of the division chief.

The man selected to head the Photo Intelligence Division
was Arthur C. Lundahl. In education, training, experience, and
personality, he was ideal for the job. Imaginative, outgoing,
perceptive, with a broad grasp of the technology of photography
and photographic interpretation as well as an extraordinary gift
for reporting its current achievements and pleading the inevitable
course of its future development, Lundahl was a perfect example
of the right man in the right place at the right time. His academic credentials were in good order: a bachelor's and a master's

degree in geology from the University of Chicago, and work towards a PhD nearly completed. During World War 1I he had served with the U.S. Navy as a photo interpretation officer. When the Agency discovered him and decided to hime him he was employed by the U.S. Navy Photographic Interpretation Center, where he was second in command and had the title, Chief Engineer. There was just one problem; the Navy was reluctant to lose him.

Even before formal establishment of the division, plans for naming its head seemed well advanced. The July 1952 GRA monthly report revealed "a definite indication" that the position of Chief of the new division could be filled by an "exceptionally competent person" early in 1953. 15/ By August, action was reported to have been taken to secure the division chief on an eight-nonth reimbursable loan from the Navy, with the option of having him transferred near the end of the period. 16/ By September it was apparent that negotiations were not going well. The GRA monthly report blamed difficulties on "low level action" by the Personnel Division, and, with a show of confidence, said that steps were under way to request loan of the individual "through high-level channels." 17/ Negotiations dragged on, first with no success in setting a transfer date and later with successive postponements of the prospective date of arrival. Finally, on 11 May 1953 Arthur C. Lundahl reported on duty as Chief, Photo

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	Intelligence Division. As if to remind him that his was not	
	the only recruitment problem, he found no secretary in the	
25X1	division. his secretary, was assigned	
	to the division effective two weeks later, on 25 May.	
	When Lundahl arrived he found six others in the division.	
25X1	One was, who was serving as Act-	
•	ing Chief, Industrial Branch 18/ and functioning as the de	
•	facto division chief in the absence of the designated head.*	
	Two others, were Naval	25X1
	Officers who had served with Lundahl at Navy PIC during the	
	Korean affair. Through their researching of photos, both had	
	become acquainted with head of the Graphics	25X1
	Register and a former naval officer himself. Knowing that they	
•	were due to be discharged from the Navy, had alerted	25X1
	them to the opportunity opening up in the Agency and helped	
	them arrange an interview. Both were hired as GS-12's.	25X1
	had entered on duty in December 1952, before he was cleared,	
	and had been sent to the Georgetown University Institute of	
	* In this same Office Notice, Arthur C. Lundahl was listed as Chief, D/GP "on reporting for duty."	

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	Linguistics for three months. He became a functioning member	
	of the division in March 1953, one month before who	25X1
	had stayed on with the Navy pending receipt of his clearance.	
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	Of the remaining three, an Agency employee	25X1
	since 1947, had the distinction of being the second person to	
	join the division. He reported for duty in December 1952 follow-	
1	ing an eleven-week course in photogrammetry at Ohio State. In	
ļ }	January 1953,	25X1
	became the third person and the second experienced PI to join	
	the division. Like she had been a photo interpreta-	
	tion officer in the U.S. Army in World War II. The sixth person	
	was a civilian photo interpreter with the U.S.	
	Air Force who had resigned, taken a trip to Canada, and came to	
	work for the Agency upon his return. Like he entered	25X1
	on duty before he was fully cleared, and, in his case, was assigned	
	to the Library of Congress to do unclassified reading and research	
	for the interim. He reported for work in the division on 9 April	
	1953, the same day as	
	were destined to remain with	
	the organization and move up in the hierarchy as the division grew.	
	The other three were all gone by May 1955. Left in the summer	25X1
	of 1953 to pursue advanced studies in Geodesy at Ohio State University,	
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after which he moved elsewhere in the GVA to work in that field.

The other two resigned from the Agency, but not without leaving their mark.

was able to arrange social contacts between her new division chief and the DVI, Robert Amory, Jr., thus expanding the channel for direct communications and fostering the strong bond of friendship that developed between them. She also proved to be especially able in providing staff support, as needed, to the office of the division chief. The unique contribution of \_\_\_\_\_\_ was less valuable. He is remembered by some of his early associates chiefly for a legacy of oil stock which subsequently proved not to have been a very lucrative investment.

### D. Requirements and Photography.

Requirements for photo intelligence and photography are inseparable, but the relationships in 1952 were very different from those following the advent of the U-2. During the early years it was primarily a question of gearing requirements to the exploitation of existing photography. Aerial coverage of the Soviet and Chinese interiors was limited and of World War II vintage. For European Russia, there was much excellent World War II German photography, known to postwar American interpreters as GX. There were lesser amounts of poorer Japanese photography of comparable age covering

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castern Asia. Known as JX, most of it was difficult or impossible to obtain in Washington. Though none of this coverage was of current intelligence value, it was of considerable utility in strategic studies. From it much useful information could be gleaned concerning immobile, slowly changing cultural features, such as settlement patterns or established industrial plants, and features of the physical environment.

Even as early as 1952 there was more recent aerial photography of parts of the Soviet Bloc as well as highly selective current coverage of border areas of high interest. There was, of course, literally tons of photography of Korea, but that was of limited importance from a strategic point of view. In addition, there were selective clandestine collection efforts, both in the air and on the ground. Without exception, those who surveyed existing needs and available photography concluded that enough suitable photography was already available to justify the establishment of a photo intelligence capability in CTA.

Within the Geographic Research Area itself there were many unsatisfied demands for photo intelligence which lay beyond the capability of most geographers or cartographers to produce themselves. The GRA served a broad spectrum of customers, not only within but outside the Agency, including the military services.

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There was, for example, the analysis of safe areas within the USSR, detailed area studies for SAC, escape and evasion studies for the joint services, border studies in support of infiltration operations, studies in support of comprehensive clandestine operations in the Far Fast, and urban analyses. In one or another of these types of studies, photo-derived information was needed on topography, roads, railroads, rivers, bridges, settlements, areas of concealment, key industries, security measures, military installations, communications facilities, and the like. Existing maps also needed correction and amplification, and, to the extent that recent photo coverage was available, frequently needed to be updated to guard against the possibility of disastrous miscalculations.

The new Photo Intelligence Division also had something to offer analysts in the Economic Research Area, though at the beginning many of them were skeptical of the utility of available aerial photography of the USSR because of its age. Excellent GX photography could yield much information on the layouts of industrial plants, their siting, the existence of room for expansion, physical relationships of their component parts, and the flow of materials through production. At the very least, it would afford the economic analyst a grasp of the physical reality of installations not available from a study of production statistics, as well as a rough and ready means for speculating informatively about the credibility of information from other sources.

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Though requirements of the Office of Scientific Intelligence (OSI) were not as capable of being defined in terms of information potentially available from World War II photography as were many of those from ORR, they did exist. Wherever research and development activity was known or suspected in an area covered by photography of suitable date, there was need for photo intelligence support. As early as July 1952, OSI had continuing requirements for intelligence utilizing aerial photo coverage of guided missile and radar sites. 19/ Moreover, that office anticipated requirements for a more exhaustive analysis of high-priority installations reported in insufficient detail in military photo interpretation reports.

To a greater degree than any other office, OCI needed current photo coverage to make photo intelligence useful in its reporting. Nevertheless, the very fact that the greatest interest of this office usually centered in trouble spots around the periphery of the Soviet Union or elsewhere in the world, and that such spots were relatively accessible to aerial reconnaissance, ensured the existence of requirements from OCI.

The mechanics of levying requirements were relatively simple at first. With only one interpreter on board for much of the time, he was both the screen through which requirements passed and the means

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by which they were answered. To provide the needed guidance in accepting them and help in setting priorities, he had the assistance of the GRA Project Review Committee.\*

According to the philosophy laid down at the founding of the division, as soon as an analyst or his supervisor became aware of the potential need for photo interpretation support, he would call for and obtain the services of a photo analyst. In consultation with the analyst, the PI would determine the pertinent photo coverage, if any, suited to solution of the problem. Upon obtaining the desired photography, the PI would sit down with the analyst again, and, working together, they would define the nature and scope of PI support required.

This screwhat idealized approach was typical of the way most requirements were generated in the early period, particularly when was the only PI. Indeed, there was, at the outset, no other viable approach. In most instances, he alone knew what

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<sup>\*</sup> The GRA Project Review Committee was composed of the Chief, GRA, who served as chairman, the four Area division Chiefs, and the Assistants to the Chiefs of the Cartography and Geography Divisions. The latter served as secretary. As directed by the Chairman, Branch Chiefs or others might attend when projects of concern to them were being considered. The committee reviewed all requirements levied on Area divisions, including those self initiated, and accepted, tabled, or rejected them, subject to the approval of the Assistant Director in the case of major projects.

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photography was available, whether or not it was potentially
suited to answering the requirement, where and how to obtain
it, and how to counsel the analyst in modifying and firming $u_{\rm P}$
the request once the photography was in hand. At first,
had the benefit of close supervision by as Chief, Geographic
Research Area, to whose office he was attached as Photo Intelli-
gence Adviser. He also had the help of who spent several
weeks, as consultant, helping to launch the new activity success-
fully. The GRA July 1952 monthly report said 10 "desk-side" con-
sultations were held with substantive analysts, and that they re-
sulted in six projects. 20/ Succeeding monthly reports mentioned
similar consultations, many of which also resulted in the levying
of requirements for PI support.

Though the foregoing approach to the development and levying of requirements was the rule during the early period of operations, there were exceptions, particularly as additional PI's arrived on duty and as analysts became more familiar with photography as a source of intelligence information. Thus, as time passed tended more and more to serve as a kind of broker, receiving or shaping up the requirements and delegating more of the actual interpretation work to the growing number of PI's in the division. Even this change, however, was one that brought the mode of operation

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to Amory. In other instances, particularly where PI support was needed by members of the Geography or Cartography divisions for projects on which they were working, a direct approach from analyst to PI was sometimes used. Requests from the DD/P posed special problems. Not only were their representatives anxious to discuss their needs with as few persons as possible, but they were frequently evasive about the precise scope of their requirements. The latter policy led to a considerable waste of scarce PI talent; the former usually cast firmly in the role of go-between.

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Toward the close of the period, a new type of requirement appeared. The D/GP monthly report for April 1953 revealed for the first time that PI's were working on self-initiated projects. 21/
Two were identified. One dealt with explosives industries and the other with amumition industries in parts of European Russia.

These projects were said to have been undertaken in anticipation of requests and as a basic approach to the production of photo intelligence concerning these industries. This change in defining work to be done represented, in some degree, a declaration of independence for the PI's. It demonstrated the growing confidence of the PI's in their ability to anticipate what photo intelligence information economic analysts would be needing and to determine the most advantageous time for its production. Philosophically, it marked a small

but significant movement away from the extremely close working relationships envisaged between PI's and analysts, a relationship which was said to be one of the distinctive differences between the work of photo intelligence officers and photo interpreters. There was no indication, however, that the direction of this movement was a matter of concern to either party.

In these early days, Agency PI's were heavily dependent on the military services, particularly the Air Force, for the aerial photography they needed. This called for the establishment of good working relations and frequent contacts between Agency PI's and those in the military. Though this community of interest was helpful in encouraging the liaison desired between Agency photo intelligence officers and military interpreters, it had its drawbacks. For one thing, it argued for the necessity of keeping at least the main working quarters for Agency PI's outside the barrier. This contributed significantly to the delay in progress toward the production of all-source photo intelligence in CTA.

Actual procurement of photography, both aerial and ground, was chiefly through the Graphics Register Division, Office of Collection and Dissemination. At this point in history, the interpretation was done from photographic prints. Consequently,

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and his staff in Graphics Rethe task before gister was to procure prints from negative materials held chiefly by the military. In spite of an obviously high degree of good will by all concerned, there were many problems, particularly at first. Most serious was the time lapse between arrival of an urgent requirement and receipt by the PI of the photographic prints needed to enswer it. By March 1953, this time span had been greatly reduced through the efforts of of the Graphics Register with the cooperation of the U.S. Air Force. Agency photo analysts were granted clearances to work in the ACIC photo collections. They were also permitted to borrow GX prints for exploitation while retention copies were being reproduced. 22/ In spite of problems in procuring photography, however, there is no record of any request for PI support having been turned away for this reason.

E. Activities and Products.

From the beginning, the photo intelligence division was, in some degree, a victim of its own success. \_\_\_\_\_\_\_ initial survey, in March and April 1952, had whetted the interest of many analysts and their supervisors in obtaining photo intelligence support. This interest was further developed with the arrival of \_\_\_\_\_\_ by his consultations with analysts. It

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wasn't as though the latter were ignorant of the existence of aerial photography or the fact that it was highly useful in mapping and certain military applications. Until now, the problem was that they lacked the technical background needed to relate its potential to their own problems. The success with which this was done, even on a pilot basis, all but overwhelmed the capability of the embryonic division to provide the desired answers. It also substantially converted the Photo Intelligence Adviser into a working PI, thus short-circuiting the orderly planning and development of work in the division.

The interpretation of photographs and the production of photo intelligence, thus, became single most important activity. At first, there were three main types of requesters, the economic analysts in ONR, analysts in the DD/P, and geographers within the GNA itself. The latter provided many services to others, so that PI support given them might, for example, be for a DD/P project. The job confronting the sole PI was, therefore, one of keeping several different customers happy by doing something for each, with due regard for priorities and realistic deadlines. This was not an easy task.

Most pressing and most difficult in these early days were border studies done for the DD/P in support of infiltration

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operations. Such projects, in which D/GP became involved through requests for support from the Geography Division, were usually done on an "urgent" priority. Where ample photography was available, they involved much detailed and painstaking photo interpretation. The immediate objective in undertaking PI support of these projects was to evaluate the best available maps and to provide information concerning the physical and cultural landscape using photography, primarily World War II German coverage. The resulting products were index plots constructed on map overlays and accompanied by notes describing significant differences between information portrayed on the map sheets and on the photos. A set of photos, on which the political boundary and other notations were marked in grease pencil, was also sent to the requester. Close collaboration, as in locating the political boundary on the photographs, was exercised between D/GP and the Geography Division. The PI contribution formed an appendix to the parent study prepared by the geographers. 23/ Prior to the arrival of Lundahl, two border studies were completed, at least two others were under way, and several more were either awaiting PI support or being considered. 24/

First to be undertaken was one on the border of the Karelo-Finnish SSR. Photo interpretation support on this project was substantially completed by the end of December 1952, but the report itself was not issued by the Geography Division until March 1953. 25/

Problems encountered in doing the work resulted not only from lack of previous experience by all concerned in this application of photo interpretation, but also from the reluctance of DD/P to pinpoint the specific areas involved. Moreover, scope of the work was increased beyond initial estimates when photography revealed that existing maps were so inaccurate as to require compilation of a sketch map based on the photography. 26/

Photo intelligence support of the Karelo-Finnish border did more than just provide information needed to satisfy an operational requirement. It demonstrated the potential of aerial photography as a source of reliable detail available nowhere else. As a result, the DD/P expanded its requirements for photo intelligence support. In December 1952, the Geography Division submitted a draft of another border study, the Polish-Belorussian SSR, to the DD/P for criticism. In response, the DD/P requested additional detail which could only be obtained from photography. 27/ Result: the establishment of another PI project by D/GP in support of work being done in the Geography Division for the DD/P.

The sense of urgency which the DD/P was able to communicate concerning its requirements was reflected in the generally expeditious handling accored its projects. Thus, of nine projects initiated in the Photo Intelligence Division between July 1952 and

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April 1953 in direct support of DD/P, eight had been completed by the end of the period (Table 3). And both DD/P projects initiated in April 1953 were finished in the same month. Moreover, of the four projects initiated in D/GP over the same 10-month period to provide PI support on border studies being done in the Geography Division for the DD/P, two were completed. If the latter performance seemed sluggish by comparison, it should be remembered that the nature and scope of photo interpretation required on these projects was such that it extended over a period of several months, precluding rapid completion of the work. Another indicator of the concerted effort applied to DD/P projects was the fact that 65 per cent of D/GP project time in April 1953 was devoted to the answering of requirements levied directly upon the division by that directorate. An additional seven percent of the D/GP project time was devoted to work in support of Geography Division projects being done for the DD/P.

By comparison, in April 1953 D/GP devoted only six percent of its project time in direct support of the ORR Industrial Division, though an additional 20 per cent was spent on self-initiated projects established to produce photo intelligence D/GP considered basic to ORR work on the USSR ammunition and explosives industries. The inferior competitive position of the ORR Industrial Division in

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Requester		iously Completed			Total Initiated Completed		
ORR-Industrial	1.4	3 ,	2	0	16	3	
ORR-Geographic	4	2	0	0	4	2	
OSI	3	2	2.	1	5	3	
OCI	i	1	0	0	1	1	
DD/P	7	6	2	2	9	8	
Self-Initiated	3	0	2	0	5	0	
	32	11/	8	3	40	17	

### Appendix B - Percentage Distribution of Man-Hours, April

Projects	77	percent
Consultation and Coordination	3	11
General Research	7	11
Administration, Development and		
Planning	.13	EP
y .	100	percent

### Appendix C - Distribution of Project Time, April

ORR - Industrial	6 percent
ORR - Geographic	7 "
OSI	2 "
DD/P	65 "
Self-Initiated	20 "
	100 percent.

Table 3. Production statistics for the Photo Intelligence Division for April 1953, with a summary of the number of all projects initiated up to that date. In effect, this constitutes an accounting of division production at the close of the pre-Lundahl period. (Included as Appendix A to the Photo Intelligence Division contribution to the Progress Report for Geographic Area, ORR, April 1953)

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obtaining PI support was also reflected in the fact that only three of 16 projects, less than 20 percent of the total, levied by that division on D/GP during the first 10 months of operation were completed by the end of April 1953. This was by far the poorest completion percentage for any of the components served during those months by the Photo Intelligence Division. The reason was obvious. These were chiefly plant studies utilizing GX photography approximately 10 years old. It would, indeed, have been difficult to argue persuasively for the urgent need to produce plant layouts and statistics on floor space for the explosives industry in competition with OSI requirements for photo intelligence information, however sketchy, on biological research institutes or DD/P requirements for area analyses in support of currently planned operations. Even so, to ORR analysts and their supervisors the poor competitive position earned by their projects must have seemed ironic. In justifying establishment of the Photo Intelligence Division, major emphasis had been placed on the need of economic analysts for PI support.

This support had commenced with a bang when arrived. Four of the six projects initiated in July 1952 as a result of his conferences with analysts were for the ORR Industrial Division, and one of them, dealing with the Kazan Airframe Plant had been completed in a day. 28/ Then the honeymoon ended. Though a layout and analysis of the Gorlovka Machinery Building Plant "Kirov" were

delivered to the Industrial Division during September, most of
the PI project time in that month was spent on the Karelo-Finnish
border study. 29/ Moreover, work on the latter project dragged
on into October, November, and December. 30/ was alone.

He was not only the Photo Intelligence Adviser, but also the
photo interpreter, the man who conducted external Liaison on PI
matters, the training officer for the new Photo Intelligence Division, and its de facto head. Work on low priority projects
virtually ceased, though consultations with ORR economic analysts
continued at a reduced pace and one urgent requirement was answered.31/

With the advent of the new year and arrival on board of the first of several additional experienced PI's there was improvement in the scheduling of work on Industrial Division requirements. In January, the study on Soviet explosives plants, which had lain dormant, was activated. 32/ By the time Lundahl arrived, it was estimated that work on it was 70 per cent complete and that work on the companion study on USSR military depots reported to be loading ammunition was half done. One of the early accomplishments of the explosives plants project was the discovery that there were numerous name duplications and that many plants believed to have been manufacturing explosives were only making other products. 33/ In addition, the tempo of PI consultations with economic analysts was

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increased, and concern was being expressed that further effort be expended to explore the needs of ORR components for photo intelligence support. 34/

In spite of manpower limitations, several additional types of projects were undertaken in response to requirements from other sources. At least four were for OSI. Indeed, the first project of record as well as the first recorded as having been completed was one done for OSI. 35/ Among the other three OSI projects was one requesting descriptions from World War II German photography of the neighborhoods where certain research facilities reportedly engaged in experimental biological research were located in Moscow. An urgently requested first-phase effort on this investigation was initiated and completed in February 1953, with an oral response to the requester. As if to demonstrate that the PI division played no favorites in allocating scarce manpower, the second phase, which was estimated to require but 12 hours PI work, was still not completed on 1 May. 36/

At this point in the evolution of aerial reconnaissance, there was much interest in long-focal-length cameras for the collection of oblique photography of denied areas from offshore stations. The photo intelligence division recognized the need to develop photogrammetric and mapping techniques for utilizing such

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photography to prepare sketch maps for intelligence purposes.
Accordingly, a self-initiated project intended to accomplish
this was established using "one-hundred-inch" photography of
a strategic area along the Bearing Sea. The assigned photo
analyst was who had recently returned from train-
ing in photogrammetry at Ohio State. In the absence of ground
control as well as precise information concerning the location
of the aircraft, the depression of the camera and its altitude
for each exposure, the problems involved were formidable.
who still functioned as PI consultant, spent
a week in Washington in March 1953 determining what flight and
camera information was essential to the solution of
problem and where it could be obtained. 37/ By the first of
May, 366 of an estimated 600-700 man hours had been expended on
this project, 38/ but it was obviously a long way from a success-
ful conclusion. It was, in fact, never completed.

Though more time was spent on projects than on any other activity,\* the philosophy according to which the division was supposed to operate called for much liaison, coordinating, and planning. For example, regularly attended meetings of

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<sup>\*</sup> In April 1953, projects accounted for 77 percent of the man hours worked. 35/

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the Graphics Research Coordinating Committee, a group comprising of representatives of all major intelligence organizations
involved in the collection, filing, and exploitation of photography. This committee was concerned not only with such things
as the latest finds of photography having high intelligence interest as well as means for obtaining them, but also of new reconnaissance systems and targets of potential interest.

During the late summer and fall of 1952, the Chief, Geographic Research and representatives from other parts of the Agency mat on several occasions with officers from the Air Force who were charged with responsibility for the development of an ambitious program in the field of intelligence and reconnaissance known as Project 40/ The relationship between the Agency and Air Force was an informal one, with CIA contributing information and ideas on strategic intelligence requirements, special aerial reconnaissance systems, and more conventional sources, such as the exploitation of publications and the use of human resources. 41/ At this early stage, serving as PI consultant, had conferences with intelligence officers from many parts of the Agency for the purpose of formulating CIA requirements that could be met through improved overhead reconnaissance. In addition, did the initial drafting

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of portions of the report on this subject prepared by the Chief, Geographic Research Area for transmittal over the signature of James Q. Reber as Assistant Director, Intelligence Coordination to the Deputy Chief of Staff, Headquarters, USAF. This memorandum distinguished between "technical intelligence photography" needed for precise analyses and members and providing plant layouts and building dimensions, and "search photography" for identifying targets of interest and determining the need for more detailed coverage. 42/ These distinctions, later narrowed to two categories, forshadowed the more recent development of search and spotting overhead collection systems. Though the high expectations for were never realized, the project served later as a cover for gathering requirements to be used in planning early U-2 missions.

Among miscellaneous duties performed by \_\_\_\_\_\_\_ during these first 10 months were administrative tasks, such as preparation of D/GP monthly reports, orientation and supervision of PI recruits when they entered on duty, preparation of training lectures, and the interviewing of geographic attaches and visiting foreign experts in the field of photo interpretation and photogrammetry. One such visitor, an officer in the Royal Swedish Navy,

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was interviewed by in October 1952. 43/ Among subjects discussed were technical developments in photo intelligence in Scandinavia, paucity of aerial coverage for Sweden and Finland, and the great advances made by the USSR in the use of acrial photography for mapping and interpretation.

A somewhat different type of technical consultation involving D/GP took place in December 1952, when representatives of DD/P and the Air Force approached the division concerning a proposed operation on the Turkish Russian border using a ground camera having a lens with a focal length of 120 inches. 44/ Agency requirements, which were much broader than the interest of the Air Force in airfields, were discussed. Coordination of CTA requirements was to be handled, however, by the clandestine services.

Training was a function of fundamental importance in the affairs of the new division. From the beginning, it had been assumed that economic and other substantive analysts would accomplish many routine photo interpretation tasks themselves, leaving only the more difficult ones to the specialists in interpretation. The success of this plan depended on the effectiveness with which the PI specialists could train other analysts in the rudiments of interpretation. Though such training was impossible

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during the first year because of understaffing in the new division, no time was lost in preparing for and offering some sketchy PI orientation to other analysts. As early as August proposed ORR internal training in map intelligence and geography, in which one of the six sessions would deal with the use of aerial photographs in intelligence. 45/ By October was giving "orientation talks" of 30 minutes 1952. duration on the use of air photos in intelligence as part of the training course for new ORR personnel. This presentation was repeated at least twice during the next six months. There is no indication, however, that or anyone else in D/GP found time for the hoped-for participation in the Geographics Seminars prior to the arrival of Lundahl. On the other hand, Lundahl himself participated in these seminars by giving off-hours sessions in the use of aerial photography in intelligence. 46/

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Agency orientation as soon as possible after arrival on duty. Competition of such training with work was pointed up, howscaped such training and a ever, by the fact that waiver was requested for Lundahl when he at last entered on duty. 47/

Though the foregoing survey of projects and other activities is by no means complete, it gives a representative sampling of the broad scope of activities in which members of the division became involved from the outset; the heavy workload, the slow pace of recruitment, and an indication of some of the obvious problems and shortcomings of the new division. One final step remains, namely, to assess the accomplishments of the new division after 10 months of operation without its designated leader on the eve of his arrival.

#### Early Problems and Accomplishments.

On the eve of Lundahl's arrival, operation of the Photo Intelligence Division displayed distinct limitations as well as some solid progress. The initial proposal for founding the division seemed modest enough, but problems of implementing it were such as to tax the ingenuity and patience of those responsible for staffing and managing the operation. For six months, but one PI was cleared and on duty, and it was only in the two

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months preceding Lundahl's entry on duty that the beneficial effects of the recruitment effort were beginning to be felt. At the close of the pre-Lundahl era, the six job incumbents constituted a sort of task force, each member of which undertook whatever type of project had to be done regardless of the position he occupied on the T/O. Though this was a necessary practical solution to problems created by the mounting number of requirements and lack of proper staffing, as a continuing practice it was contrary to the stated need to foster specialization in each of several designated fields. Moreover, the division was still operating without a formal, approved statement of mission and functions, except for the objectives included in the Staff Study recommending its establishment. Obviously, the delay in obtaining the division chief was proving costly in terms of planning and management. There was an urgent need to chart the course of future development for the division as well as to augment and marshal its resources to accomplish the stated

Space was also becoming a problem. Though it was realized from the beginning that new quarters would have to be found as soon as the division began to approach full strength, the slow rate of growth during early months encouraged postponement of

objectives.

the eventual solution. Early in 1953, the division monthly report claimed that the space in Building 11 was no longer adequate for efficient operations. It called for new quarters "near the analysts." 48/ Presumably this meant the economic analysts; the PI's were already in the same building as the geographers. By February, the problem had moved up one echclon. The new Chief, Geographic Research, noted that prospects of getting the expected space in "M" building were gloomy, and warned that the temporary solution then under consideration would delay establishment of an adequate support program for the economic analysts. 49/ A month later he pointed to the embarrassment and difficulty the new division chief would experience by being placed in inadequate quarters away from his operating branches. 50/ Clearly, the provision of functionally suitable space for the Photo Intelligence Division was another of the immediate problems to be faced by Lundahl upon his arrival.

Equipment used by Agency PI's at this point in history was not yet significantly different from that employed elsewhere. The initial budget had allocated but for the purchase of equipment. The chief working tool was still the folding pocket steroscope, though funds had been earmarked for purchase

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of a bench steroscope and an Sketchmaster. In fairness to this approach, it should be realized, however, that there was nothing unique about the scale or resolution of the photography being used in CIA, and that neither the photo coverage nor the intelligence problems to whose solution it could be addressed demanded a high degree of sophistication in techniques of interpretation. Nor was there time, in these early days, to lavish on the interpretation of minutiae or to dream of new exploitation systems. Though neither the immediate need nor the opportunity called for inauguration of a research and development program at this time, it was an obvious future requirement if the Agency were to assume leadership in the development of a photo intelligence capability geared to the production of increasingly detailed and critical information for use by strategic planners and policy makers at the highest levels in government. Moreover, in view of the significance of lead time in such development, this was another problem to which Lundahl would have to direct his attention with some sense of urgency.

Since service to other analysts and the evolutionary development of photo interpretation programs to support them was the prime objective of the operation, this was the area in which greatest progress was made. The most striking success was probably

achieved in support of the DD/P. The greatest deficiency was exhibited in slow progress in developing a pregram for realizing the potential for providing all-source PI support to economic analysts in the ORR Industrial Division. As late as April 1953, at least four of the six PI's in the division still lacked an SI clearance. 51/ Moreover, the exigencies involved in work on higher priority projects were seriously compromising work on those initiated in response to require-

ments from the Industrial Division.

Though relatively good service was provided in response to the limited requests for support from OSI, the whole gamut of exciting and exotic developments in Soviet missilery, aircraft, atomic weapons, biological and chemical warfare, and the like secred to stand but a step beyond the reach of the photo interpreters. This was a sleeping giant that could be awakened by the first reconnaissance aircraft penetrating his domain.

And this was the type of photographic input most likely to precipitate a crash effort to develop new and more exacting exploitation systems and techniques. There was one other sleeper. The low level of support provided to CCI in the first 10 months was hardly a fair measure of the potential demand. All that was needed to trigger virtual production pandemonium was some photogenic world crisis. Thus, the new division chief was confronted

with the joint tasks of providing responsive answers to all requirements, whatever their priority, while at the same time developing adequate photo intelligence programs to maximize contributions of photography to the solution of all kinds of intelligence problems, not just a fortunate few.

In spite of uneven progress in the development of photo intelligence programs to support economic and other analysts, the division had held firmly to the goal of establishing a photo intelligence organization dedicated to the use of allsource materials in the exploitation of photography. This was the concept initially introduced by and It was also the approach advosubscribed to by cated by Lundahl and brought to fulfillment in later years under his persuasive leadership. Though it may not have been an obvious accomplishment during these early and trying months, this unwavering adherence to the concept of photo intelligence based, the use of all all-source materials may well have been the most significant achievement during the pre-Lundahl period. It assured that however feebly the torch was burning, it was, nevertheless, still there to be brightened and carried on to greater heights in subsequent years.

If the job before Lundahl seemed discouraging because of

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its complexity and the mounting urgency of all its constituent
parts, there was one reason for optimism. He and the cause
of photo intelligence had staunch supporters in
and Amory, and the latter two had recently been thrust
by circumstances into positions that ensured their continued
strong support no matter what opposition developed.
With the appointment of Amory as DD/I on 23 February 1953,
became the AD/RR. In his previous position as Chief, Geo-
graphic Research, had been responsible for supervising
the development of the PI function and for staffing up and
overseeing management of the division. In this capacity, he
had first-hand knowledge of divisional problems, and he had,
over the months, been justifying proposals for their solution
to his superior, the AD/RR. Now he occupied that position.
When his successor, reiterated the same claims and
reminded him that some of these problems had been around nearly
a year, it should be expected that he would get a favorable re-
sponse. And, within the realities of the situation, did
respond favorably.
who situation with Amory was oven more important. Not.

The situation with Amory was even more important. Not only did he, as DD/I, occupy a more influential position, but he was also an extremely dynamic person. From the beginning of

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his short term as AD/RR, Amory had pleaded the cause of photo intelligence before his superior, and through him, before the highest councils in the Agency. Now he was one of the Deputy Directors. Like he could hardly repudiate his previous stand without seeming opportunistic. Nor was there any indication that he had any desire or intention to do so. As DD/I he retained his strong enthusiasm and support for photo intelligence. Indeed, he was an almost unique resource just waiting to be tapped by the man with the right combination. That man was Arthur C. Lundahl.

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# Approved For Release 2004/02/12 : CA-RDH78B05703A000400070001-4 SECURITY INFORMATION

Assistant Director, Research and Reports

23 October 1963

Chief, Geographic Research

Request for Promotion for Mr. Arthur C. Lundohil

- 1. Since Mr. Lundahl reported for duty on 11 May 1953, he has assumed the active leadership and direction of the Photo Intelligence Division, contributing significantly to the establishment of a sound organization and devoloping its substantive program in relation to the activities and made of this Agency.
- 2. His work in developing functional statements for the Division, position descriptions and position qualifications, as well as sound intra-divisional administrative methods and techniques have been outstanding contributions toward development a smoothly operating Pivision.
- 3. He has a wealth of technical knowledge, government know-how, a ksem feeling for intelligence, and many contains which are of tignificance in the establishment of the libric intelligence Division as a vital participant in IAC photo intelligence activities and as a coordinator in the field of photo intelligence activities and requirements.
- 4. In view of Mr. Lundwhl's demonstrated abilities in supervision, educatetration, and his professional and technical competence, it is recommended that he be promoted from grade CS-14 to grade CS-15.

ccb/d: Ll. vel

ADIER Proced file